

FROM CHALLENGE TO POWER

COMBUSTION SYSTEMS

HEAT TRANSFER SYSTEMS

WATER AND STEAM SYSTEMS

COMPONENTS



No task too complicated. No problem too complex. No road too long: This is the standard we live by. Every day, all around the world, we dedicate our full energy to this commitment.

"IF IT DOESN'T WORK THIS WAY, WE'LL FIND ANOTHER WAY."

We don't just find solutions—we create opportunities. From development to the delivery of tailor-made systems, we ensure that your production sets new standards in efficiency and sustainability. Individually planned, precisely engineered, excellently manufactured—and perfectly tailored to your needs.

Our commitment, "From Challenge to Power," captures the essence of what **INTEC** stands for: We transform every challenge into powerful solutions. Because your goals are our drive—and your success is our energy.

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**FROM
CHALLENGE
TO POWER.**



INTEC ENGINEERING— THE POWER BEHIND TECHNOLOGY

INTEC is a dynamic company with a global reach, specializing in the design, engineering, and delivery of high-quality systems for generating industrial process heat, sustainable power, and advanced power plant technology.

The key components of our systems—including high-pressure steam generators, heat recovery units, solid fuel firing systems, and secondary control loops—are manufactured directly by our subsidiary, **INTEC Rohrtechnik GmbH**, in Bruchsal. This ensures top-tier quality, short lead times, and maximum flexibility to meet individual customer requirements.

Since its founding in 1995, **INTEC** has grown into a successful second-generation family business. Today, more than 100 employees dedicate their knowledge, experience, and passion every day to deliver sustainable solutions for our customers. Our global partner network ensures rapid response times, reliable service, and expert support—anywhere, anytime.



Stutensee

Carlsruhe



OUR PRODUCT RANGE

/ COMBUSTION SYSTEMS

Grate firing systems, fluidized bed combustion, dust combination burners, dust and granulate injection systems, industrial burners for fossil or alternative fuels

/ HEAT TRANSFER SYSTEMS

Thermal oil heaters, heat recovery units

/ WATER AND STEAM SYSTEMS

Heat recovery steam generators, natural circulation boilers, directly fired steam boilers

/ PLANT COMPONENTS

Heat exchangers, control loops, pump stations, indirect steam generators, pressure vessels, valves, boiling and degassing systems, contact dryers for sludges, chimneys, flue gas cleaning systems, fuel storage and conveying systems, ORC systems, steam turbines

INTEC PLANTS:

Deliver energy and process heat for a wide range of industries and sectors.

- ✦ Wood / Engineered Wood
- ✦ Pulp / Paper
- ✦ Textile
- ✦ Food
- ✦ Palm Oil / Oleochemistry
- ✦ Oil / Gas
- ✦ Petrochemicals
- ✦ Chemicals / Plastics
- ✦ Shipbuilding
- ✦ Automotive
- ✦ Semiconductors
- ✦ Consumer Goods
- ✦ Metal / Mining
- ✦ Recycling

INTEC SERVICES:

INTEC supports the entire project lifecycle—from the first idea and engineering through project development and customized plant design, all the way to delivery, installation supervision, and commissioning. We cover the full spectrum.

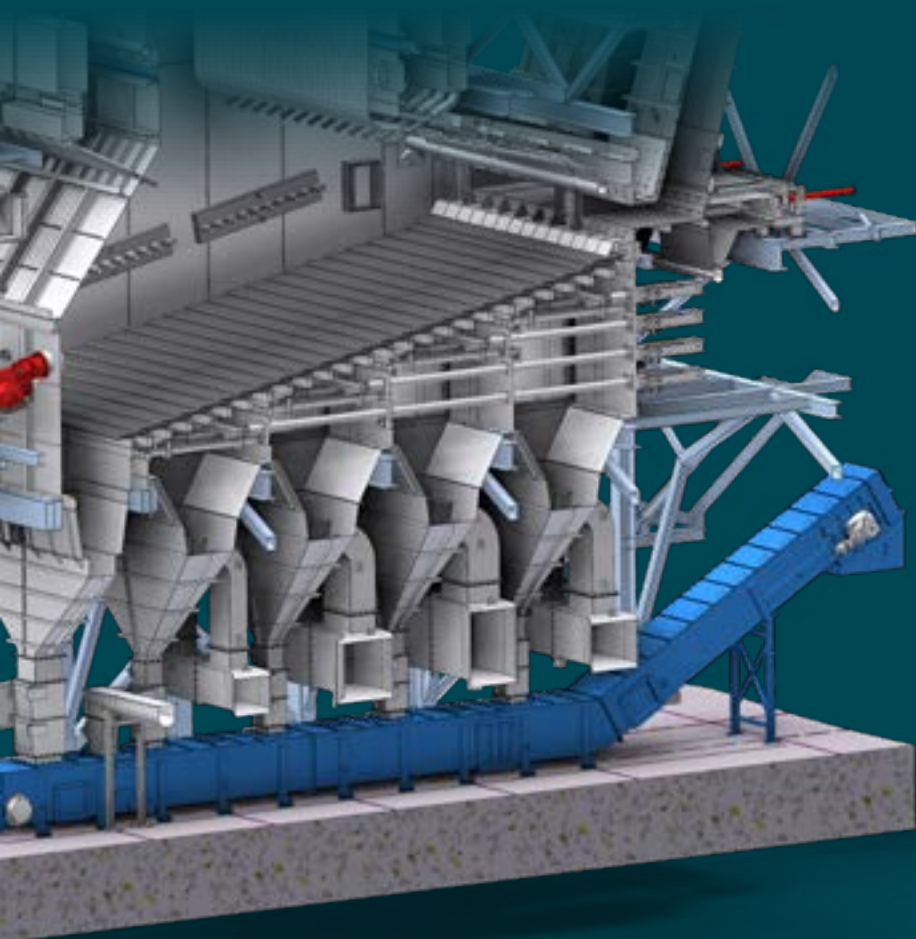
COMBUSTION SYSTEMS

Rising fossil fuel prices and the increasing demand for renewable, CO₂-neutral energy call for innovative solutions. INTEC designs, engineers, and delivers customized solid-fuel-fired energy systems that are both environmentally friendly and highly efficient. These systems provide process energy to industrial plants. By integrating steam turbines or ORC modules in combination with a thermal oil circuit, they can also be configured to generate electricity.

/ GRATE SYSTEM

Our biomass combustion concept

The INTEC grate system is particularly well-suited for burning biomass and solid fuels contaminated with impurities such as metals and stones. Due to its robustness and flexibility, the grate system has become the preferred combustion solution across various industries.



Features

- Low transport due to the modular design of our grates
- Comparatively low internal energy consumption
- Excellent performance under partial and fluctuating loads
- Automatic ash removal
- Staged air supply ensures low emissions
- Easily combined with dust and granulate injection systems
- Scalable up to 80 MWth thermal output

/ FLUIDIZED BED

Efficient combustion—designed with flexibility in mind

For the combustion of biomass and thermal waste treatment, fluidized bed combustion is often the preferred choice. The **INTEC** fluidized bed system is an atmospheric fluidized bed that, depending on the type of fuel, utilizes partial ash recirculation through a side bed to significantly improve performance.

Features

- ▲ Up to 50% heat recovery and high operational safety thanks to ash cooler in the side bed
- ▲ High fuel flexibility
- ▲ Staged air injection in the combustion chamber lowers NO_x emissions through controlled temperature and air-fuel ratio
- ▲ Constant combustion temperature in the fluidized bed through controlled ash recirculation
- ▲ Thermal output range from 1 MWth to 80 MWth



/ DUST COMBINATION BURNERS

Our industrial burners in combination with gas or oil

The MST dust combination burner is an industrial-grade burner designed for the combustion of dry, fine-grained biomass and coal dust. MST burners are available in a power range from 5 to 90 MWth and can also safely incinerate exhaust gases from industrial processes.

Features

- ✓ Cost-effective alternative to combustion systems for coarse solid fuels
- ✓ Versatile use as auxiliary firing or stand-alone solution, e.g., for hot gas generation, steam and hot water boilers, or thermal oil heaters
- ✓ Flexible combustion of various fuels—either individually or in combination



/ DUST AND GRANULATE INJECTION SYSTEMS

Our burner for biomass dust or granulate

INTEC injection burners can be integrated into any solid fuel combustion system. When operated in parallel with a grate system or fluidized bed, the injection burner manages load control thanks to its rapid response capabilities.



Features

- ✓ Efficient use of biomass dust and granulates for heat generation
- ✓ Dust: 0–1 mm
Granulate: 1–20 mm
- ✓ Fast and flexible load adjustment

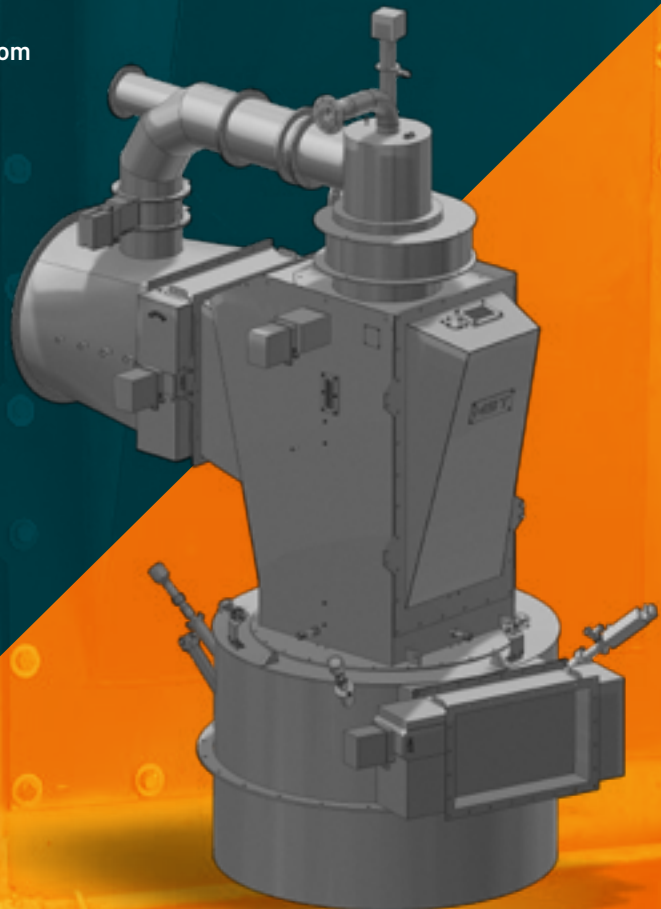
/ INDUSTRIAL BURNERS

Our solution for fossil or alternative fuels

Maximum flexibility for your processes: INTEC offers industrial burners that are suitable for fossil fuels, thermal oxidation, and are hydrogen-ready—smart, sustainable, and clean.

Features

- Multi-functional use: fossil fuels, process exhaust air (RTO)
- Future-proof: hydrogen-ready for sustainable production processes
- High energy efficiency: optimal use of input energy
- Low emissions: advanced combustion technology reduces environmental impact
- Process reliability: stable operation even under demanding conditions
- Thermal output range from 100 kWth to 90 MWth



HEAT TRANSFER SYSTEMS

Heat transfer systems deliver thermal energy exactly where it's needed in industrial operations—quickly, safely, and efficiently. They are used in a wide range of industrial applications, including power generation, heat applications as well in the chemical and processing industries. A heat transfer system typically consists of a heat generator, a heat transfer medium, and a distribution infrastructure—including piping, pumps, and valves—that circulates the medium throughout the system.

/ THERMAL OIL HEATERS

Maximum efficiency. Proven reliability. No compromises.

INTEC thermal oil heaters are used to supply process heat to production facilities across all major industries. All design types—whether horizontal, vertical, up- or down-fired, electrically heated—tailor made, to meet our customers' individual requirements 100%.



Features

- ✔ High efficiency of up to 95%
- ✔ Supply of process heat up to 350 °C—without pressure
- ✔ Tailor-made systems built to your exact needs
- ✔ Low maintenance and operating costs
- ✔ Highly accurate temperature and load regulation
- ✔ Robust construction and long service life
- ✔ Small Foot Print “rocket-style” design, also available according API standards
- ✔ Horizontal or vertical configuration for thermal outputs of up to 30 MWth per heater
- ✔ Features a cooled turning plate with the option of a front inspection hatch for easy access

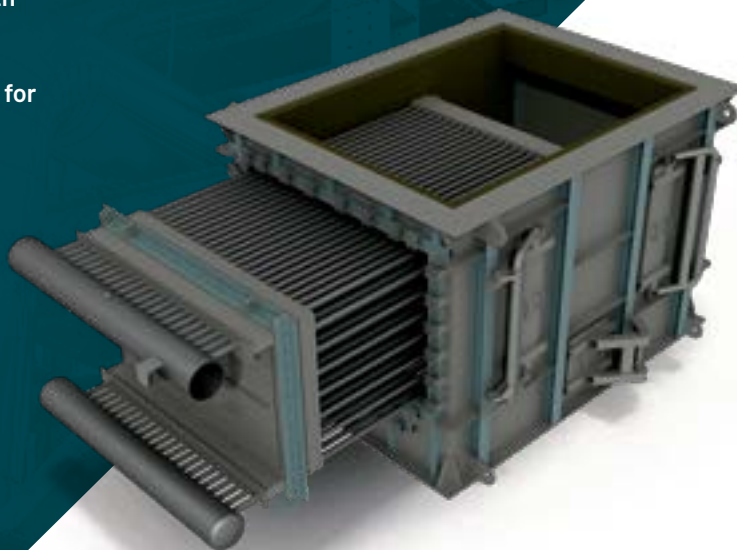
/ HEAT RECOVERY UNITS

As flexible as the challenges of industrial thermal applications

INTEC heat recovery systems utilize waste heat from industrial processes or combustion systems. They are widely used downstream of solid fuel combustion plants, thermal oxidizers, gas and diesel engines, melting furnaces, and turbines.

Features

- Utilization of waste heat for thermal oil heating, hot water or steam generation
- Custom design adaptation for a wide variety of fuel types
- Maximum flexibility: three-pass boiler design, radiant sections, and heat recovery towers—available as standalone units or in combination
- Heavy-duty construction with dragable tube bundles
- Automatic cleaning systems for efficient operation



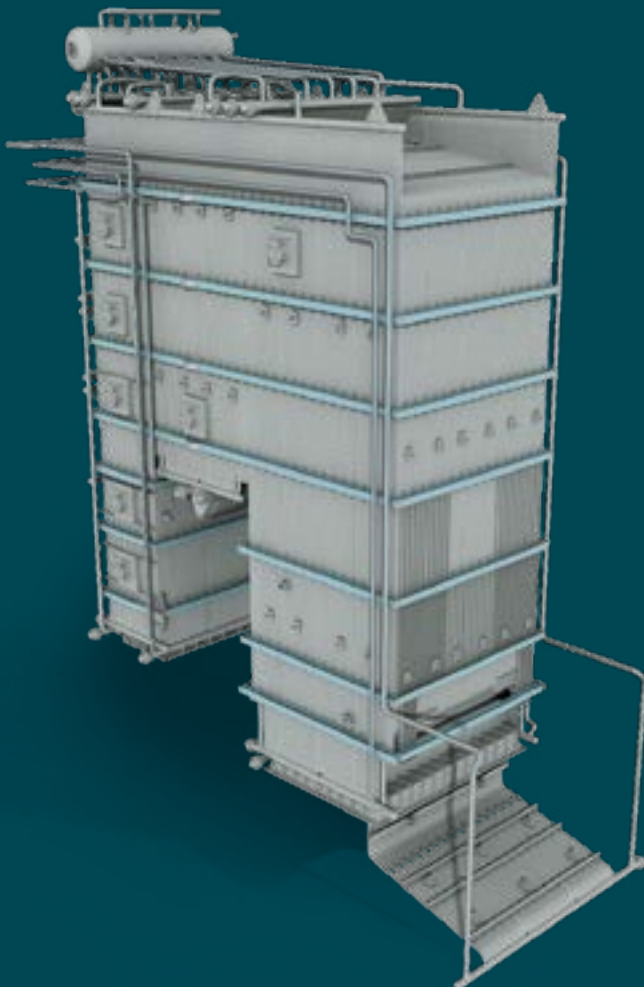
WATER AND STEAM SYSTEMS

Water and steam systems are used across numerous industries as storage media as well as energy carriers. Their applications include generation of power via a turbine and a wide range of production processes such as pressing, drying, or heat treatment. Steam is also used as a working fluid, for atomization, cleaning, and humidification purposes.

/ HEAT RECOVERY STEAM GENERATORS

Proven technology

INTEC heat recovery steam generators (HRSGs) are high-pressure or saturated steam generators, designed as water-tube boilers. They are used wherever superheated steam and/or high pressure is required. The superheated high-pressure steam is typically running a turbine for power production. INTEC offers a wide range of HRSG capacities, primarily serving industries for process heat and energy generation.



Features

- High availability due to effective cleaning systems
- Customizable design for a wide variety of fuel types and waste gases
- Proven technology with flexible process parameters
- High efficiency and compact construction
- Up to 150 t/h of steam, 540 °C and 100 bar

/ NATURAL CIRCULATION BOILERS

Our high-pressure steam generator

The **INTEC** INOOK natural circulation boiler is a high-pressure steam generator operating in closed water-steam cycles at high pressures—particularly used in oleochemical industries to supply process heat, eliminating the need for a feedwater pump. **INTEC** designs and supplies application-specific water-tube boiler systems in various pressure and performance ranges.

Features

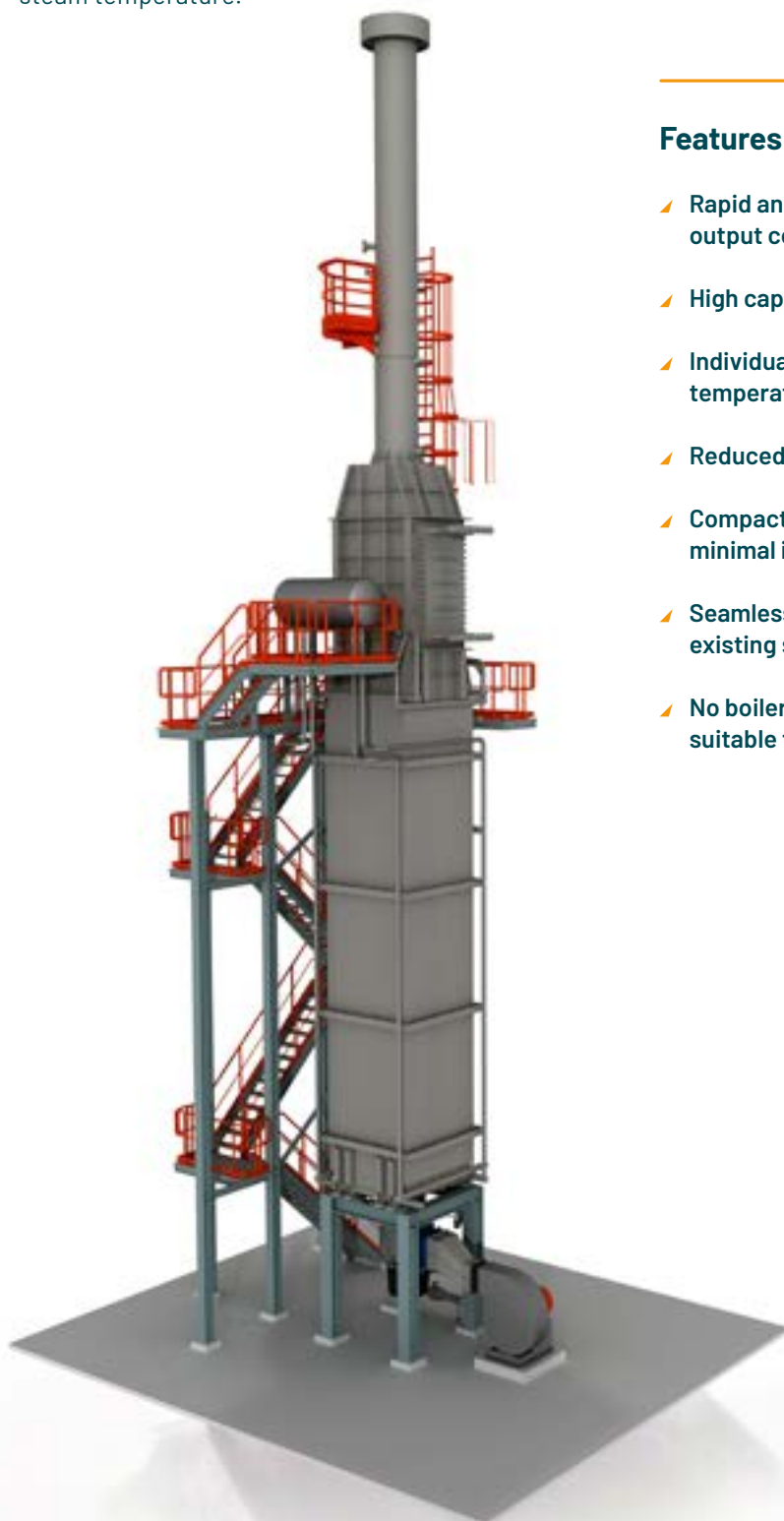
- ✔ Reliable generation of high pressures exceeding 100 bar
- ✔ Fast and flexible steam output control
- ✔ No need for flue gas fan or feedwater pump
- ✔ Compact design requiring minimal installation space
- ✔ Scalable up to 8 MWth thermal output



/ DIRECT FIRED STEAM BOILERS

iCUBE—Designed for open systems

The iCUBE direct-fired steam generators from **INTEC** are engineered based on the vertical water tube boiler design. Tailored to meet specific customer requirements, these boilers are customized in terms of output, steam pressure, and superheated steam temperature.



Features

- Rapid and precise steam output control
- High capacities—up to 120 MWth
- Individual steam pressure and temperature configurations
- Reduced overall plant costs
- Compact design requiring minimal installation space
- Seamless integration into existing systems
- No boiler house required—suitable for outdoor installation



AS VERSATILE AS YOUR REQUIREMENTS

SOLUTIONS THAT FIT YOUR PROCESS.
NOT THE OTHER WAY AROUND.

PLANT COMPONENTS

Beyond core systems, we offer a wide range of high-quality components that perfectly complement your installation. Key elements such as high-pressure heat exchangers, waste heat boilers, moving grate systems, fluidized bed incinerator, sludge dryer and secondary control loops are manufactured by our subsidiary, **INTEC Rohrtechnik GmbH**, in Bruchsal, Germany. This local production ensures fast, flexible, and reliable implementation of custom requests.

As a one-stop supplier with decades of experience and a broad product portfolio, **INTEC** delivers solutions for the most demanding thermodynamic requirements and complex industrial applications.

/ HEAT EXCHANGERS

Air preheaters & economisers—boosting efficiency where it matters

Air preheaters significantly enhance plant efficiency by increasing the temperature of the combustion air, thereby reducing primary energy consumption in boiler and power plant systems. Economisers—another key type of heat exchanger—are widely used across all types of energy plants to recover heat from exhaust gases and preheat feedwater.



Features

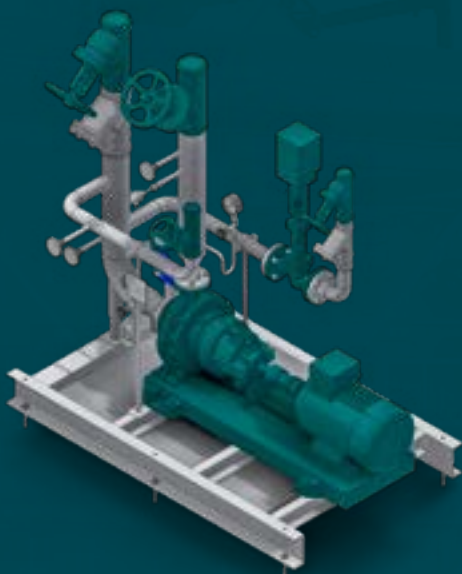
- ✓ Improved sustainability and lower energy use thanks to effective heat recovery
- ✓ Flexible design options—size, type, and configuration tailored to your process needs

COMPONENTS FOR THERMAL OIL SYSTEMS

/ CONTROL CIRCUITS

Precisely engineered for individual requirements

Many industrial processes require thermal energy at varying temperatures. Secondary control circuits are used to supply each heat consumer with the required flow, temperature and capacity.



Features

- Precise control of temperature and flow rates—independent of the primary circuit's temperature level
- Suitable for both heating and cooling circuits
- Fully pre-assembled secondary circuits available for quick commissioning

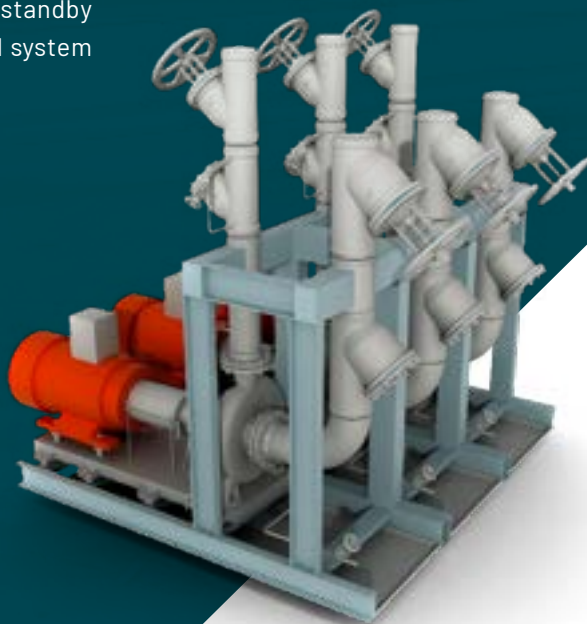
/ PUMP STATIONS

Efficient and safe circulation of thermal oil

The pump station ensures continuous transport of thermal oil from the boiler to the consumers. Integrated standby pumps guarantee maximum operational safety and system availability.

Features

- Robust fixed-point constructions made of steel profiles absorb pipe forces and moments safely
- Pre-assembled pump groups for fast and simple installation
- Pumps equipped with leakage monitoring—for maximum safety in continuous operation



/ INDIRECT STEAM GENERATORS

Cost-efficient generation of saturated steam

Indirect steam generators efficiently use thermal oil to produce saturated steam for industrial processes.



Features

- Easy maintenance and quick repair through dragable tube bundles
- Quick response to load changes due to high heat transfer rates
- Operation without permanent supervision—not subject to TRD regulations (EN 12952, EN 12953)
- Reliable steam generation: up to 60 t/h and up to 60 bar pressure

/ VESSELS

Atmospheric or pressurized vessels for safe operation

During heating, the expansion volume of the heat transfer medium is contained in the expansion vessel. During maintenance, the collection vessel must be large enough to hold the system's thermal oil volume, allowing for safe drainage. Expansion and collection vessels are equipped with fill and drain systems, the necessary sensors and very often are slightly pressurized with nitrogen.





/ VALVES

Optimized- for all requirements

High-performance valves for various pressures, temperatures, and media are required for safe and defined operation of all systems. Shut-off valves, flaps, and control valves are designed for minimal pressure loss and maximum efficiency.

/ LOW BOILER DEGASSING SYSTEMS

For the removal of light volatiles and water

Our tried-and-tested components continuously remove water, light boiling fractions and dissolved gases caused by thermal stress in the thermal oil. This effectively slows oil aging and significantly extends oil life.



COMPONENTS TO COMPLETE YOUR SYSTEM

/ CONTACT DRYERS

For drying sewage or industrial sludges

Prior to thermal treatment, sludge needs to be dried in a way that allows burning without extra energy input. Our contact dryers consist of counter-rotating screw shafts, with double-walled screw flights, shafts, and housings heated by thermal oil or steam—achieving drying levels up to 90%.

Features

- High drying efficiency through direct contact between sludge and heated surfaces
- Low electrical energy consumption
- Fast adjustment of drying level
- Compact design
- Modular design driven by throughput and dry solids content



/ CHIMNEYS

Technically and Economically Optimized Solutions

INTEC provides chimneys tailored in height and design to meet project-specific needs. This means you always get a technically and economically optimum solution for your system.

/ FLUE GAS CLEANING

Efficient reduction of emissions from combustion processes

Modern industrial facilities must meet stringent emissions regulations to comply with environmental regulations and protect air quality. Thus, effective flue gas cleaning is essential to remove pollutants before releasing them into the atmosphere. Depending on the fuel type and emission standards, either ESP or baghouse filters with dry or wet reactor types are selected, ensuring the most cost-effective and environmentally efficient solution.

Features

- ✦ Increased public and regulatory acceptance through significant emission reduction
- ✦ Compliance with international pollutant removal standards
- ✦ Flexible integration—INTEC plants are compatible with all standard flue gas cleaning technologies



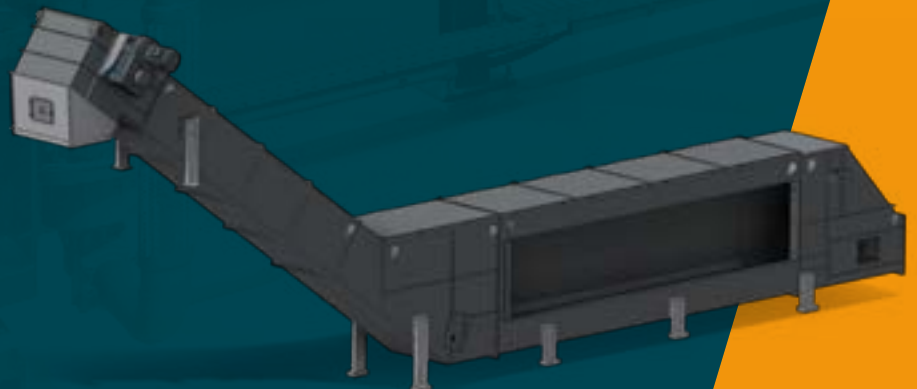
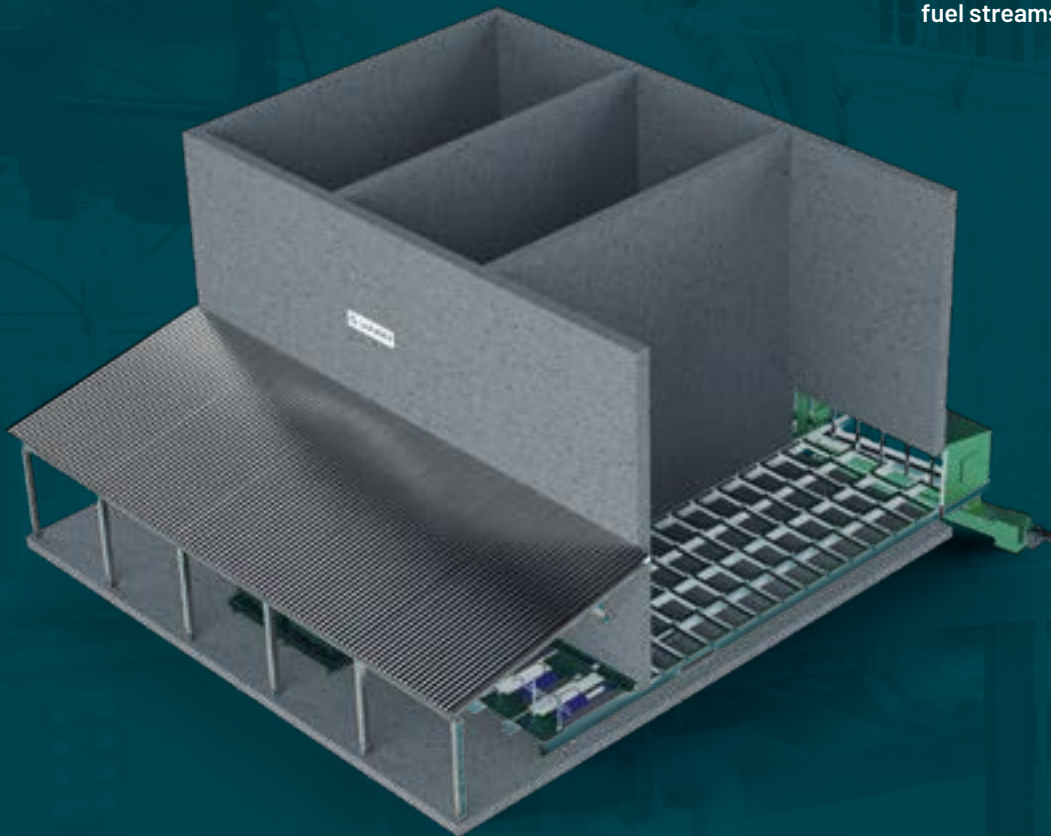
/ FUEL STORAGE AND CONVEYING SYSTEMS

For all fuel types

In cooperation with leading manufacturers, we offer customized systems for receiving, conveying, dosing, and storing, specially optimized for difficult-to-handle fuels. Our solutions ensure reliable and efficient fuel transport within your facility.

Features

- Flexible systems for various fuel quantities and characteristics
- Optional systems for pre-sorting fuel streams



/ ORC SYSTEMS

For low-temperature applications

Organic Rankine Cycle power plants are based on the principle of converting thermal energy into mechanical work, which is then converted into electrical energy via a generator. In the field of combined heat and power generation, ORC technology has established itself in certain processes, offering many advantages over steam turbines.



Features

- High efficiency even in partial load operation
- No water treatment required
- Operable with waste heat sources starting at 100 °C
- Can be run without permanent supervision
- Virtually wear-free turbines for long service life

/ STEAM TURBINES

For large-scale power generation

A steam turbine is a powerful machine that converts thermal energy from steam into mechanical energy, which is then often used to generate electricity. Its principle is based on the expansion of steam, which flows through specially shaped blades to drive a turbine wheel. The versatile combined heat and power machine can reliably produce both electricity and heat in large-scale plants with high efficiency and almost all steam parameters.

Features

- High efficiency through optimal use of thermal energy
- Proven, globally accepted technology
- Flexible configurations for a wide range of applications, including backpressure, extraction, and condensing operations





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